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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/533,678	03/23/2000	Masami Hatori	Q56799	1082

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EXAMINER

NGUYEN, TUAN M

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 01/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/533,678

Applicant(s)

HATORI, MASAMI

Examiner

Tuan M Nguyen

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-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.


- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 October 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

  
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**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All   b) ☐ Some \*   c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>5</u> | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6 and 11-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Mizuuchi et al (5,506,722).

With respect to claims 1 and 12, Mizuuchi et al disclose a semiconductor laser (52) for radiating coherent light consisting of fundamental waves and an optical converting device (31) for converting the fundamental waves radiated from the semiconductor laser into second harmonic waves, a ferroelectric substrate (32), a plurality of inverted polarization layers (33), a non-inverted polarization layers (35), an optical waveguide (34), input/output end facets (34a, 34b), a direction of spontaneous polarization (Ps), note col. 6 line 25 to col. 16 line 7, see figs. 5-9 and 22.

With respect to claims 2-6, Mizuuchi et al disclose the spontaneous polarization direction of said substrate form a predetermined angle with respect to the substrate surface on a plane perpendicular to a propagation direction of the fundamental wave, and predetermined angle is larger than 0 degree and smaller than 20 degree, note col. 7.61 to col. 15 line 67 , see fig. 5-9.

With respect to claim 8, Mizuuchi et al disclose a semiconductor laser (52) for radiating coherent light consisting of fundamental waves and an optical wavelength converting device (31), a ferroelectric crystal substrate (32), note col. 9 line 23 to col. 13 line 44, see figs. 5 and 22.

With respect to claim 11, Mizuuchi et al disclose the optical wavelength conversion element (31) converts a wavelength of said fundamental wave to a wavelength of a second harmonic of said fundamental wave, note cols. 12-13, see figs. 5 and 22.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 7 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizuuchi et al (5,506,722) in view of Mizuuchi et al (5,652,674).

With respect to claim 7, Mizuuchi et al disclose semiconductor laser (52), center optical wavelength (34), see fig 37. However Mizuuchi et al do not disclose the phase matching wavelength of the optical wavelength conversion element. Whereas Mizuuchi et al ('674) disclose the phase matching wavelength of the optical wavelength conversion element, note col. 25 line 42 to col. 40 line 39, see figs. 21 and 24A-B. For the advantageous of the semiconductor

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laser makes the center wavelength of stimulated emission of the laser beam coincide with a phase matching wavelength of the optical wavelength conversion element, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Mizuuchi et al with the phase matching as taught or suggested by Mizuuchi ('674).

With respect to claims 9-10, Mizuuchi et al ('674) disclose the SiO<sub>2</sub> thin film (34) and the thickness of the thin film is 200 nm, note col. 29, see figs. 14a-15d.

5. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizuuchi et al (5,506,722) in view of Nightingale et al (6,151,342).

With respect to claims 13-15, Mizuuchi et al disclose a substrate (42), an optical wavelength conversion element (96), a semiconductor laser (72) are mounted on the flat surface, note col32 line 55 to col. 33 line 34, see fig 35. However Mizuuchi et al do not disclose the stepped surface and the difference between a distance from an upper surface of the semiconductor laser to light exit position of a laser beam and the optical waveguide. Whereas nightingale et al disclose the stepped surface and the difference between a distances from an upper surface of the semiconductor laser to light exit position of a laser beam and the optical waveguide , note col. 7 line 15 to col. 8 line 67, see figs. 1-8. For the advantageous of mounting the semiconductor laser to the stepped surface of the substrate for fixing and the distance difference from an upper surface of the semiconductor laser to the light exit position of a laser beam and the optical waveguide, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Mizuuchi et al with the stepped surface and the difference between a distance from an upper surface of the semiconductor laser to light exit position of a laser beam and the optical waveguide e as taught or suggested by Nightingale et al.

***Response to Arguments***

6. Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground(s) of rejection.

***Citation Of The Pertinent References***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The patent to Mizuuchi et al (US patent 5,836,073) discloses method of making optical wavelength converting device.

***Communication Information***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan M Nguyen whose telephone number is (703) 306-0247. The examiner can normally be reached on 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3329.



Paul Ip  
SPE  
Art unit 2828